

Listing and Amendments to the Claims

This listing of claims will replace the claims that were published in the PCT Application:

1. (currently amended) An apparatus ~~(400)~~ for processing a stream of fixed-length packets received as digitally encoded signals and having multiple packet types, each packet including a header portion, the header portion containing a checksum-encoded synchronization-byte, the apparatus comprising:

a synchronization-byte detector ~~(220-I)~~ for detecting position-candidates of a checksum-encoded synchronization-byte in each packet, and for periodically outputting a synchronization-byte position signal at a first detected position within each packet, wherein the Synchronization Detector ~~(220-I)~~ is adapted to respond to a “resync” command signal by trying to detect a checksum-encoded sync-byte in a second position within each packet.

2. (currently amended) The apparatus of claim 1, further comprising a False Lock Detector ~~(540)~~ adapted to generate and assert the “resync” command signal because at least one predefined anomaly condition that indicates a possible false-lock condition has been detected.

3. (currently amended) The apparatus of claim 2, wherein the False Lock Detector ~~(540)~~ is adapted to assert the “resync” command signal because a first predefined anomaly condition, characterized by a MPEG-2 PAT table having not been detected in the stream, has been detected.

4. (currently amended) The apparatus of claim 2, wherein the False Lock Detector ~~(540)~~ is adapted to assert the "resync" command signal because a second predefined anomaly, characterized by an expected MPEG-2 PMT table having not been detected in the transport stream, has been detected.

5. (currently amended) The apparatus of claim 2, wherein the False Lock Detector ~~(540)~~ is adapted to assert the "resync" command signal because a predefined anomaly, characterized by a supposed MPEG-2 PAT table containing invalid information, has been detected.

6. (currently amended) The apparatus of claim 2, wherein the False Lock Detector ~~(540)~~ is adapted to assert the "resync" command signal because a predefined anomaly, characterized by a supposed MPEG-2 PMT table containing invalid information, has been detected.

7. (currently amended) The apparatus of claim 2, wherein the False Lock Detector ~~(540)~~ is adapted to assert the "resync" command signal because a third predefined anomaly, characterized by at least one of the MPEG-2 PID's listed in a MPEG-2 PMT having not been detected in the stream, has been detected.

8. (currently amended) The apparatus of claim 2, wherein the False Lock Detector ~~(540)~~ is adapted to assert the "resync" command signal because a fourth predefined anomaly, characterized by a discontinuity in at least one MPEG-2 continuity counter for MPEG-2 packets in the stream, has been detected.

9. (currently amended) The apparatus of claim 2, wherein the False Lock Detector (~~540~~) is adapted to assert the "resync" command signal because a fifth predefined anomaly, characterized by the MPEG-2 transport_error_indicator bit encoded in a MPEG-2 packet's header being "1" while the MPEG-2 Error_flag is "0", has been detected.

10. (currently amended) The apparatus of claim 2, wherein the synchronization-byte detector (~~220-1~~) is adapted to respond to a "resync" command signal by skipping the current detected sync-byte position and then by trying to detect the next position-candidate of a checksum-encoded synchronization-byte using the conventional checksum detection process.

11. (currently amended) The apparatus of claim 1, further comprising a Decision Logic circuit (~~542~~) adapted to generate the "resync" command signal in response to the detection of a dynamically defined selection of one or more of the following anomaly conditions a) through e):

- a) a MPEG-2 PAT table has not been detected in the stream;
- b) a MPEG-2 PMT table has not been detected in the stream
- c) at least one of the MPEG-2 PID's listed in a MPEG-2 PMT has not been detected in the stream;
- d) a discontinuity in at least one MPEG-2 continuity counter for MPEG-2 packets in the stream has been detected;
- e) the value of the MPEG-2 transport_error_indicator bit detected in a MPEG-2 packet's header is "1" while the MPEG-2 Error_flag bit is "0."

12. (currently amended) An apparatus ~~(400)~~ for processing a stream of fixed-length packets received as digitally encoded signals and having multiple packet types, each packet including a header portion, the header portion containing a checksum-encoded synchronization-byte, the apparatus comprising:

a False Lock Detector ~~(540)~~ adapted to generate a "resync" command signal because at least one predefined anomaly condition that indicates a possible false-lock condition has been detected.

13. (currently amended) The apparatus of claim 12, further comprising a synchronization-byte detector ~~(220-I)~~ for detecting position-candidates of a checksum-encoded synchronization-byte in each packet, and for periodically outputting a synchronization-byte position signal at a first detected position within each packet, wherein the Synchronization Detector ~~(220-I)~~ is adapted to respond to the "resync" command signal by trying to detect and to "lock" to a checksum-encoded sync-byte in a second position within each packet.

14. (currently amended) The apparatus of claim 13, wherein the False Lock Detector ~~(540)~~ is adapted to generate and assert the "resync" command signal because at least one of the following predefined anomaly conditions, has been detected:

- f) a MPEG-2 PAT table has not been detected in the stream;
- g) a MPEG-2 PMT table has not been detected in the stream
- h) at least one of the MPEG-2 PID's listed in a MPEG-2 PMT has not been detected in the stream;
- i) a discontinuity in at least one MPEG-2 continuity counter for MPEG-2 packets in the stream has been detected;
- j) the value of the MPEG-2 transport_error_indicator bit detected in a MPEG-2 packet's header is "1" while the MPEG-2 Error_flag bit is "0."

15. (currently amended) The apparatus of claim 14, wherein the False Lock Detector ~~(540)~~ includes a Decision Logic circuit ~~(542)~~ adapted to select at least one of anomaly conditions a) through e) as a causal basis of the "resync" command signal to be generated and asserted by the False Lock Detector ~~(540)~~.

16. (currently amended) The apparatus of claim 14 wherein the False Lock Detector ~~(540)~~ includes a filter that implements hysteresis thresholding of anomaly-indicating flag values that are based upon parsing the MPEG-2 packets in the Stream as delineated by the synchronization-byte detector.

17. (original) The apparatus of claim 16 wherein the filter is implemented by a finite state machine.

18. (currently amended) The apparatus of claim 14 wherein the False Lock Detector ~~(540)~~ includes a MPEG-2 demultiplexer/decoder of the related art.

19. (currently amended) The apparatus of claim 14 wherein the False Lock Detector ~~(540)~~ includes MPEG-2 Packet Parser ~~(544)~~ adapted to parse MPEG-2 packets in the stream.

20. (currently amended) The apparatus of claim 19 wherein the MPEG-2 Packet Parser ~~(544)~~ is adapted to generate anomaly-indicating flag values based upon parsing the MPEG-2 packets in the Stream as delineated by the synchronization-byte detector.

21. (currently amended) The apparatus of claim 19 wherein the MPEG-2 Packet Parser ~~(544)~~ includes at least one dedicated anomaly-detecting circuit.

22. (currently amended) The apparatus of claim 19 wherein the MPEG-2 Packet Parser ~~(544)~~—includes a first comparator, adapted to compare the MPEG-2 PID of a packet delineated by the synchronization-byte detector, with a table of expected PID values.

23. (currently amended) The apparatus of claim 20 wherein the False Lock Detector ~~(540)~~— further includes a Decision Logic circuit ~~(542)~~ adapted to select at least one of anomaly flags as a causal basis of the “resync” command signal to be generated and asserted by the False Lock Detector ~~(540)~~.

24. (original) The apparatus of claim 12 wherein the “resync” command signal restarts the conventional process of detecting a checksum-encoded sync-byte position within the packets in the stream.

25. (currently amended) The apparatus of claim 13 further comprising an MPEG Sync-Byte Re-insertion circuit ~~(240)~~—for inserting a predetermined value into the sync-byte position indicated by the synchronization-byte detector ~~(220-I)~~.

26. (currently amended) The apparatus of claim 13, wherein the synchronization-byte detector is an MPEG-2 sync-byte detector that includes a Syndrome Detector ~~(220-I)~~—for detecting a checksum-encoded sync-byte.

27. (original) A method for processing a stream of fixed length packets each packet containing a checksum-encoded sync-byte, the stream including a plurality of packets that each contain a first fixed bit pattern in the header portion of each packet, the method comprising:

performing a first detection step of decoding the checksum in the stream to detect a checksum-encoded sync byte position-candidate in the stream; and

performing a false lock detection step including detecting at least one anomaly that indicates a possible false synchronization lock; and then

performing a second detection step of decoding the checksum in the stream to detect a second checksum-encoded sync byte position-candidate in the stream.

28. (original) The method of claim 27, further comprising the intermediate step of generating a "resync" command signal having a value indicating that a possible false synchronization lock has been detected, and outputting that "resync" flag signal value to a synchronization-byte detector adapted to respond to the "resync" command signal value by trying to detect and resynchronize to the next position-candidate of a checksum-encoded synchronization-byte using the conventional checksum detection process.

29. (original) The method of claim 28, wherein the "resync" command signal value depends upon at least one anomaly-indicating flag value.

30. (currently amended) The method of claim ~~34~~ 27 wherein the anomaly-indicating flag value depends upon one of the following anomaly conditions having been detected:

- b. at least one of the MPEG-2 PID's listed in a MPEG-2 PMT has not been detected in the stream;
- c. a discontinuity in at least one MPEG-2 continuity counter for MPEG-2 packets in the stream has been detected; or
- d. the value of the MPEG-2 transport_error_indicator bit in a MPEG-2 packet's header is "1" while the MPEG-2 Error_flag is "0".

31. (original) The method of claim 27, wherein performing the false lock detection step further includes performing at least one anomaly-detecting substep of detecting a first anomaly that indicates a possible false synchronization lock by parsing at least one of the packets.

32. (original) The method of claim 27, wherein performing the false lock detection step further includes performing at a plurality of anomaly-detecting substeps wherein a plurality of anomalies that each indicate a possible false synchronization lock are detectable by parsing at least one of the packets.

33. (original) The method of claim 32, wherein the plurality of anomalies includes:

- e. at least one of the MPEG-2 PID's listed in a MPEG-2 PMT has not been detected in the stream;
- f. a discontinuity in at least one MPEG-2 continuity counter for MPEG-2 packets in the stream has been detected; and
- g. the value of the MPEG-2 transport_error_indicator bit in a MPEG-2 packet's header is "1" while the MPEG-2 Error_flag is "0".

34. (original) The method of claim 32 wherein the anomaly-indicating flag value depends upon one of the following anomaly conditions having been detected:

- a) a MPEG-2 PAT table has not been detected in the stream;
- b) a MPEG-2 PMT table has not been detected in the stream;
- c) at least one of the MPEG-2 PID's listed in a MPEG-2 PMT has not been detected in the stream;
- d) a discontinuity in at least one MPEG-2 continuity counter for MPEG-2 packets in the stream has been detected;
- e) the value of the MPEG-2 transport_error_indicator bit detected in a MPEG-2 packet's header is "1" while the MPEG-2 Error_flag is "0".

35. (original) The method of claim 27 further comprising the step of inserting a predetermined sync-byte value into the first detected checksum-encoded sync byte position-candidate, and after performing false lock detection step, then performing the step of inserting the predetermined sync-byte value into the second detected checksum-encoded sync byte position-candidate.

36. (original) The method of claim 27, further comprising: performing a synchronization-lock step of delineating the packet boundaries of a plurality of packets based upon the position of the second detected sync-byte position candidate; and

performing the insertion step of inserting a predetermined sync-byte value into the second detected sync-byte position candidate in each of the plurality of packets.

37. (original) A computer program product for a set-top-box that comprises a set of instructions, which, when loaded into the set-top-box, causes the set-top-box to carry out the method, for processing a stream of fixed length packets, claimed in claim 27.

38. (original) A computer program product for a television set that comprises a set of instructions, which, when loaded into the television set, causes the television set to carry out the method, for processing a stream of fixed length packets, claimed in claim 27.